



June 6, 2007

Project No. 2007-205-02

Mr. Patrick Shirley  
ARCADIS  
30 Patewood Dr., Suite 155  
Greenville, SC 29615-6809

**Transmittal**  
**Laboratory Test Results**  
**Ashland – Greenville OH002000**

Please find attached the laboratory test results for the above referenced project. The tests were outlined on the Project Verification Form that was faxed to your firm prior to the testing. The testing was performed in general accordance with the methods listed on the enclosed data sheets. The test results are believed to be representative of the samples that were submitted for testing and are indicative only of the specimens which were evaluated. We have no direct knowledge of the origin of the samples and imply no position with regard to the nature of the test results, i.e. pass/fail and no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization by our Client. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

We are pleased to provide these testing services. Should you have any questions or if we may be of further assistance, please contact our office.

Respectively submitted,  
**Geotechnics, Inc.**

David R. Backstrom  
Laboratory Director

***We understand that you have a choice in your laboratory services  
and we thank you for choosing Geotechnics.***

# UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS

ASTM D 7012-04 Method C Modified

CLIENT: ARCADIS  
CLIENT PROJ: ASHLAND - GREENVILLE OH002000  
PROJECT NO.: 2009-401-01  
LAB ID NO.: 2009-401-01-01-351

BORING I.D.: MW36PWR  
DEPTH(ft): 9.1-9.7  
SAMPLE ID: NA

<u>SPECIMEN LENGTH (in.)</u>		<u>SPECIMEN DIAMETER(in.):</u>	
BEFORE CAPPING		READING 1:	3.19
READING 1:	6.49	READING 2:	3.19
READING 2:	6.49	AVERAGE:	<b>3.19</b>
READING 3:	6.49	AREA(in <sup>2</sup> ):	8.00
AVERAGE:	<b>6.49</b>	L/D:	2.05
 <u>SPECIMEN LENGTH (in.)</u>		TOTAL LOAD(lbs) 119,950	
AFTER CAPPING		<b>COMPRESSION STRENGTH (PSI): 14,990</b>	
READING 1:	6.53	<b>(1) CORRECTION (PSI): 15,160</b>	
READING 2:	6.53	FRACTURE TYPE: <b>CONE</b>	
READING 3:	6.54	RATE OF LOADING(lbs/sec): 161	
AVERAGE:	<b>6.53</b>	TIME TO BREAK(min:sec.): 12:27.22	
		DEVIATION FROM STRAIGHTNESS <sup>4</sup> :	
		AXIAL: Pass	TOP: Pass      BOTTOM: Pass

NOTES: 1) Corrected PSI value for L/D > 2.00, as per ASTM D 7012-04. [ failure stress/(0.88 + 0.222 \* (d/l)) ]  
2) Moisture conditions at time of test are as received.  
3) Specimens capped with cement/plaster paste.  
4) Deviation from straightness, Procedure A of ASTM D 4543.  
5) Temperature is laboratory room temperature.  
Pass/Fail criteria: gap < 0.02 = Pass, gap > 0.02 = Fail



## PHYSICAL DESCRIPTION:

Notes:

Tested By: JO Date: 10/16/09 Checked By: DB Date: 10/16/09

# UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS

ASTM D 7012-04 Method C Modified

CLIENT: ARCADIS  
CLIENT PROJ: ASHLAND - GREENVILLE OH02000  
PROJECT NO.: 2009-401-01  
LAB ID NO.: 2009-401-01-02-351

BORING I.D.: MW35PWR  
DEPTH(ft): 12.0-12.8  
SAMPLE ID: NA

## SPECIMEN LENGTH (in.)

### BEFORE CAPPING

READING 1: 6.52  
READING 2: 6.52  
READING 3: 6.51  
**AVERAGE: 6.52**

## SPECIMEN DIAMETER(in.):

READING 1: 3.27  
READING 2: 3.26  
AVERAGE: **3.26**  
AREA(in<sup>2</sup>): 8.37  
L/D: 2.01

## SPECIMEN LENGTH (in.)

### AFTER CAPPING

READING 1: 6.56  
READING 2: 6.56  
READING 3: 6.56  
**AVERAGE: 6.56**

TOTAL LOAD(lbs) 57,005  
**COMPRESSIVE STRENGTH (PSI): 6,810**  
**(1) CORRECTION (PSI): 6,880**

FRACTURE TYPE: **CONE**

RATE OF LOADING(lbs/sec): 161  
TIME TO BREAK(min:sec.): 5:54.06

DEVIATION FROM STRAIGHTNESS<sup>4</sup>:

AXIAL: *Fail*

TOP: *Pass*

BOTTOM: *Pass*

NOTES: 1) Corrected PSI value for L/D > 2.00, as per ASTM D 7012-04. [ failure stress / (0.88 + 0.222 \* (d/l) ) ]

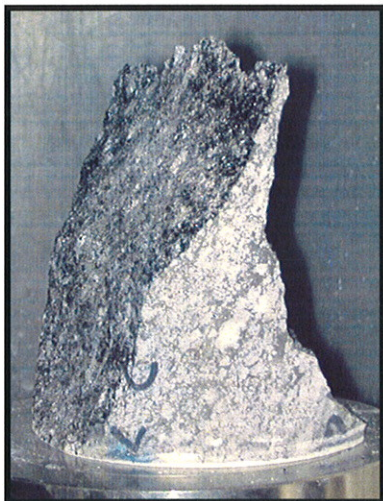
2) Moisture conditions at time of test are as received.

3) Specimens capped with cement/plaster paste.

4) Deviation from straightness, Procedure A of ASTM D 4543.

5) Temperature is laboratory room temperature.

Pass/Fail criteria: gap < 0.02 = Pass, gap > 0.02 = Fail



## PHYSICAL DESCRIPTION:

Notes:

Tested By: JO

Date: 10/16/09

Checked By: DB

Date: 10/16/09

# UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS

ASTM D 7012-04 Method C Modified

CLIENT: ARCADIS  
CLIENT PROJ: ASHLAND - GREENVILLE OH02000  
PROJECT NO.: 2009-401-01  
LAB ID NO.: 2009-401-01-03-351

BORING I.D.: MW34PWR  
DEPTH(ft): 11.5-12.5  
SAMPLE ID: NA

SPECIMEN LENGTH (in.)

BEFORE CAPPING

READING 1: 6.63  
READING 2: 6.64  
READING 3: 6.64  
**AVERAGE: 6.64**

SPECIMEN DIAMETER(in.):

READING 1: 3.33  
READING 2: 3.34  
AVERAGE: **3.33**  
AREA(in<sup>2</sup>): 8.72  
L/D: 2.01

SPECIMEN LENGTH (in.)

AFTER CAPPING

READING 1: 6.68  
READING 2: 6.68  
READING 3: 6.69  
**AVERAGE: 6.68**

TOTAL LOAD(lbs) 75,185  
**COMPRESSIVE STRENGTH (PSI): 8,620**  
**(1) CORRECTION (PSI): 8,700**

FRACTURE TYPE: **SHEAR**

RATE OF LOADING(lbs/sec): 163  
TIME TO BREAK(min:sec.): 7:42.22

DEVIATION FROM STRAIGHTNESS<sup>4</sup>:

AXIAL: *Fail*

TOP: *Pass*

BOTTOM: *Pass*

NOTES: 1) Corrected PSI value for L/D > 2.00, as per ASTM D 7012-04. [ failure stress/(0.88 + 0.222 \* (d/l)) ]

2) Moisture conditions at time of test are as received.

3) Specimens capped with cement/plaster paste.

4) Deviation from straightness, Procedure A of ASTM D 4543.

5) Temperature is laboratory room temperature.

Pass/Fail criteria: gap < 0.02 = Pass, gap > 0.02 = Fail



PHYSICAL DESCRIPTION:

Notes:

Tested By: JO

Date: 10/16/09

Checked By: DB

Date: 10/16/09

# UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS

ASTM D 7012-04 Method C Modified

CLIENT: ARCADIS  
CLIENT PROJ: ASHLAND - GREENVILLE OH02000  
PROJECT NO.: 2009-401-01  
LAB ID NO.: 2009-401-01-04-351

BORING I.D.: MW39PWR  
DEPTH(ft): 15.2-15.9  
SAMPLE ID: NA

## SPECIMEN LENGTH (in.)

### BEFORE CAPPING

READING 1: 6.61  
READING 2: 6.62  
READING 3: 6.62  
**AVERAGE: 6.62**

## SPECIMEN DIAMETER(in.):

READING 1: 3.32  
READING 2: 3.32  
AVERAGE: **3.32**  
AREA(in<sup>2</sup>): 8.65  
L/D: 2.01

## SPECIMEN LENGTH (in.)

### AFTER CAPPING

READING 1: 6.66  
READING 2: 6.66  
READING 3: 6.67  
**AVERAGE: 6.66**

TOTAL LOAD(lbs) 142,650  
**COMPRESSIVE STRENGTH (PSI): 16,490**  
**(1) CORRECTION (PSI): 16,650**

FRACTURE TYPE: **CONE**

RATE OF LOADING(lbs/sec): 166  
TIME TO BREAK(min:sec.): 14:21.68  
DEVIATION FROM STRAIGHTNESS<sup>4</sup>:

AXIAL: *Fail*

TOP: *Pass*

BOTTOM: *Pass*

NOTES: 1) Corrected PSI value for L/D > 2.00, as per ASTM D 7012-04. [ failure stress/(0.88 + 0.222 \* (d/l)) ]

2) Moisture conditions at time of test are as received.

3) Specimens capped with cement/plaster paste.

4) Deviation from straightness, Procedure A of ASTM D 4543.

5) Temperature is laboratory room temperature.

Pass/Fail criteria: gap < 0.02 = Pass, gap > 0.02 = Fail



## PHYSICAL DESCRIPTION:

Notes:

Tested By: JO

Date: 10/16/09

Checked By

D3

Date

10/16/09

# UNCONFINED COMPRESSIVE STRENGTH TEST RESULTS

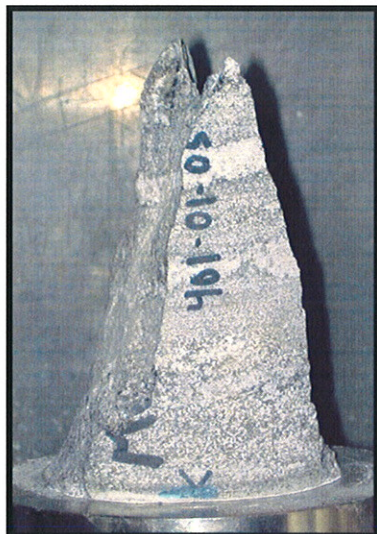
ASTM D 7012-04 Method C Modified

CLIENT: ARCADIS  
CLIENT PROJ: ASHLAND - GREENVILLE OH02000  
PROJECT NO.: 2009-401-01  
LAB ID NO.: 2009-401-01-05-351

BORING I.D.: MW39PWR  
DEPTH(ft): 11.8-12.5  
SAMPLE ID: NA

<u>SPECIMEN LENGTH (in.)</u>		<u>SPECIMEN DIAMETER(in.):</u>	
BEFORE CAPPING		READING 1:	3.28
READING 1:	6.59	READING 2:	3.27
READING 2:	6.59	AVERAGE:	<b>3.28</b>
READING 3:	6.59	AREA(in <sup>2</sup> ):	8.43
AVERAGE:	<b>6.59</b>	L/D:	2.03
<u>SPECIMEN LENGTH (in.)</u>		TOTAL LOAD(lbs) 113,700	
AFTER CAPPING		<b>COMPRESSIVE STRENGTH (PSI): 13,480</b>	
READING 1:	6.64	<b>(1) CORRECTION (PSI): 13,620</b>	
READING 2:	6.64	FRACTURE TYPE: <b>CONE</b>	
READING 3:	6.64	RATE OF LOADING(lbs/sec): 165	
AVERAGE:	<b>6.64</b>	TIME TO BREAK(min:sec.): 11:28.99	
		DEVIATION FROM STRAIGHTNESS <sup>4</sup> :	
		AXIAL: <i>Fail</i>	TOP: <i>Pass</i> BOTTOM: <i>Pass</i>

NOTES: 1) Corrected PSI value for L/D > 2.00, as per ASTM D 7012-04. [ failure stress/(0.88 + 0.222 \* (d/l)) ]  
2) Moisture conditions at time of test are as received.  
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4) Deviation from straightness, Procedure A of ASTM D 4543.  
5) Temperature is laboratory room temperature.  
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Notes:

Tested By: JO

Date: 10/16/09

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